IN REPLY REFER TO:

# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
SALT LAKE DISTRICT OFFICE
2370 South 2300 West
Salt Lake City, Utah 84119

1784
(U-020)

FEB 2 2 1991

Dr. Randy Moon
State Science Advisor
116 State Capitol Bldg.
Salt Lake City, Utah 84114

Dear Dr. Moon:

I thought it appropriate at this time to provide the members of the Bonneville Salt Flat Conservation Coalition with an update because it's been several months since our last Coalition meeting.

We completed the Salt Loss Funding Justification report in November of 1990. We mailed that report to all Coalition members and BLM Headquarters in early December. I hope you all received your copy of that report and found it acceptable.

I spent three days (January 23, 24, 25) in Washington, D.C. meeting with BLM Headquarters staff and Congressman Hansen's staff concerning the funding needs for the Salt Loss and Salt Replacement Studies. I briefed BLM Director Jamison and his immediate staff on January 23, stressing the urgence of funding this study and the over-all importance of the Salt Flats. The immediate feedback I received was that there were no funds available for this fiscal year. While the Director was very agreeable with the need to protect the Salt, the only way funds could be made available through BLM would be to take back funds already distributed to the field organization. That would be very difficult because of limited budget and conflicting priorities.

Congressman Hansen's office seems the much more optimistic avenue. They are approaching the funding dilemma in two ways: encouraging the BLM Director (and eventually the Secretary) to re-allocate FY-91 funds to make money available for the Study, and introducing specific budget legislation before Congress to allocate funds for FY-91 and FY-92. I can report to you that Congressman Hansen has gathered the support of the Utah Delegation but I cannot predict how successful that support will be in these times of severe federal budget constraints. As much as we dislike it, it seems we are now in a wait-and-see position.

We do have $130,000 available this fiscal year to cover USGS work, but that will not allow us to keep up with the Salt Loss Study Plan. Most likely that money will not allow USGS to do the additional well drilling the study plan called for, and, if that is the case, the study will be set back a year unless additional funds are obtained.

The unfortunate consequence now is that with funding very uncertain, we are having to scale back the study activity with USGS. We are in danger of having to fall back a year, which is certainly undesirable.

The plan of study for the Salt Replacement (Test Plot) Study is finished and is enclosed. There was some difference of opinion among the sub-committee members about the scope and methodology, so we had to go forward with a majority opinion rather than a unanimous one. The funding for this study is also lacking, and our best hope right now seems to be tied in to the Salt Loss Funding package being pursued by Congressman Hansen.

With these developments and the funding uncertainties, a meeting of the Coalition may be in order. However, I've been waiting for more definite developments before calling one. I'd appreciate knowing your feelings on this. Also, please give Congressman Hansen whatever support you can in his effort to secure funding for the studies. This will be no easy task.

Sincerely,

Deane

Deane H. Zeller
District Manager

Enclosure
BSF Replacement & Stabilization Study

cc: Technical Review Committee

# BONNEVILLE SALT REPLACEMENT AND STABILIZATION STUDY

## DESCRIPTION OF WORK

## TABLE OF CONTENTS



**APPENDIX**

## 1. GENERAL CONDITIONS

1.1 The Contractor must supply a current certificate of insurance. The Contractor further agrees that he will be responsible for all of his subcontractors and that they too shall comply with the insurance requirements and furnish necessary certificates.

1.2 The Contractor shall enforce all OSHA safety regulations. Hard hats and safety glasses will be worn at all times on the job site.

1.3 A proposed construction schedule clearly indicating start date and completion date shall be submitted with the bid proposal. A definite construction schedule will be established with the successful bidder at the time of contract execution.

1.4 Pricing information including applicable markup percentages, labor, materials, tools, equipment rental and overhead costs that will apply to contract "extras" or additions to, revisions of and deductions from the contract shall be submitted with the bid proposal.

1.5 The Contractor will furnish construction power for trailers, tools, and lighting required for shift work. The Contractor will provide, at his own expense, office, change, tool and storage trailers as required along with drinking water, construction water and temporary toilet facilities.

1.6 The Contractor shall specifically and clearly state all exceptions, clarifications and alternates to contract drawings and specifications making up this request for quotation.

1.7 BLM wishes to acknowledge that the Contractor may possess unique knowledge or manufacturing techniques that might place his proposal at variance with portions of these specifications. Such alternatives will be considered, provided conditions of performance and quality of materials meet or exceed those specified. However, in order to obtain this consideration, each item must be called out and clearly labeled as an exception or alternate to the original proposal. Failure of the Contractor to point out any alternates or exceptions will not excuse him from the requirements therein.

1.8 The Contractor verifies that they have full knowledge and experience requirements, as well as all the necessary equipment or availability thereof, for the performance of the work; that they will provide a sufficient number of skilled workmen, UNDER PROPER SUPERVISION AND ADEQUATE EQUIPMENT, to the end that the work will be accomplished in the most expeditious and workmanlike manner.

1.9 The Contractor will include in his bid, a list of all subcontractors he proposes to employ in the execution of this contract with a brief description of their scope of work.

1.10 Authorization of work exceeding the lump sum price can only be made by the authorized representative, in writing. No other claims will be considered valid.

1.11 BLM shall not be responsible for any loss of items the Contractor might experience.

1.12 Bid proposals are to be submitted by the date shown on the Project Schedule. The proposal shall be completed and include ALL data requested in this contract. Bids which are not completed per this request will not be accepted.

1.13 Contractors are urged to visit the site prior to submitting a proposal.

1.14 Listings and items required on the Bid Sheet are to be broken down as specified below:

- Total Material Costs
- Total Labor Costs
- Total Project Costs
- Duration Schedule
- Working Hours and Days Per Week
- Alternates Listed Separately
- Time and Material Rate for Extra Work

1.15 Construction is to be completed by the date shown on the Project Schedule.

1.16 The Contractor will be responsible for obtaining all building permits and any other permits which are required for completion of the work called out in this contract.

1.17 The Contractor will be responsible for scheduling all the work described in this contract.

1.18 The Contractor will be responsible to coordinate his work with all other contractors selected by BLM and with Reilly production operations personnel to prevent any conflicts in the work being done. The Contractor will work with all other BLM selected contractors to facilitate the completion of the total work schedule.

1.19 All materials used on the job site by the Contractor or his subcontractors shall be stored in areas designated by BLM. The storage areas shall be kept neat and clean at all times. All waste resulting from work done by the Contractor or his subcontractors will be cleaned up and removed from the job site. All unused materials which were paid for by BLM under this contract will be turned over to BLM at the completion of the job.

1.20 The Contractor shall be responsible for removing the clay material from the test plot site after the test is complete. The Contractor shall also be responsible for disposal of the clay material.

1.21 This entire package of specifications and instructions will become a part on the Contract.

## 2. SCOPE OF WORK

The Contractor will furnish all tools, labor, supervision, transportation, and materials, except those listed in the Appendix as "Furnished by Others (FBO)", to complete the following work:

2.1 Construct two salt retention test plots per specifications listed in Paragraph 5 and applicable drawings listed in Paragraph 4. Test Plot #1 will utilize retaining walls to "pond" liquid which is approximately twenty percent (20%) sol. Test Plot #2 will consist of green salt from the solar pond or #1 harvest pond.

2.2 Install instrumentation for monitoring and maintaining test plots per specifications listed in Paragraph 6 and applicable drawings listed in Paragraph 4.

2.3 Application of magnesium chloride solution as per section 5.3 for test plot #3.

## 3. PROJECT SCHEDULE AND EQUIPMENT LIST

3.1 Quotation Request Issued:

3.2 Bids Due:

3.3 Construction Start Date:

3.4 Construction Completion Date:

3.5 Equipment List:

## 4. DRAWING LIST

| DRAWING DESCRIPTION | SHEET NUMBER |
|---|---|
| Plan of test plots | 1 of 3 |
| Cross section through Test Plot #1 | 2 of 3 |
| Cross section through Test Plot #2 | 3 of 3 |

## 5. TEST PLOT CONSTRUCTION

### 5.1 Test Plot #1

5.1.1 Test Plot #1 shall be constructed with compacted clay retaining walls. The retaining walls shall be no less than twelve inches (12") and no more than eighteen inches (18") in height with a forty-five degree (45 degree) side slope.

5.I.2 The Contractor shall be responsible for loading and transporting the clay fill from the Salduro Loop to the test plot site.

5.1.3 The Contractor shall be responsible for unloading, spreading and compacting the fill material at the test plot location.

5.1.4 It is the responsibility of the Contractor to ensure that the fill material is clean and does not contain refuse, organic matter or salt blocks greater than three inches (3") in diameter.

5.1.5 The Contractor shall compact the fill material in lifts not exceeding eight inches (8").

5.1.6 Only fill material with a moisture content within ten percent (10%) of the optimum moisture content shall be compacted.

5.1.7 Fill material shall be compacted to achieve a density no less than eighty percent (80%) of the maximum dry density, as measured by the Standard Proctor Test.

5.1.8 The Contractor shall remove all debris from the test plot location prior to construction. The Contractor shall be responsible for ensuring that the test plot site is free of all refuse and organic matter prior to placing any fill material.

5.1.9 The Contractor shall be responsible for transporting the liquid from Reilly Industries mill to the test plot location. The Contractor shall also be responsible for dispersing the liquid into the test plot.

### 5.2 Test Plot #2

5.2.1 Test Plot #2 shall be constructed by spreading green salt from the solar pond (Harvest #1). The salt shall be uniformly spread over the test plot area. This test plot will not utilize retaining walls.

5.2.2 The Contractor shall spread the green salt in such a manner that the depth of salt above the existing grade is no less than four inches (4") and no greater than six inches (6") at any location within the test plot.

5.2.3 The Contractor shall be responsible for excavating, loading and transporting the salt fill from the solar pond to the test plot site.

5.2.4 The Contractor shall be responsible for unloading and spreading the fill material at the test plot location.

5.2.5 The Contractor shall be responsible for working the excavated material to ensure that the requirements of subparagraph 5.2.2 are obtained.

5.2.6 It is the responsibility of the Contractor to ensure that the fill material is clean and does not contain refuse or organic matter.

5.2.7 The Contractor shall remove all debris from the test plot location prior to construction. The Contractor shall be responsible for ensuring that the test plot site is free of all refuse and organic matter prior to placing any fill material.

## 5.3 Test Plot #3

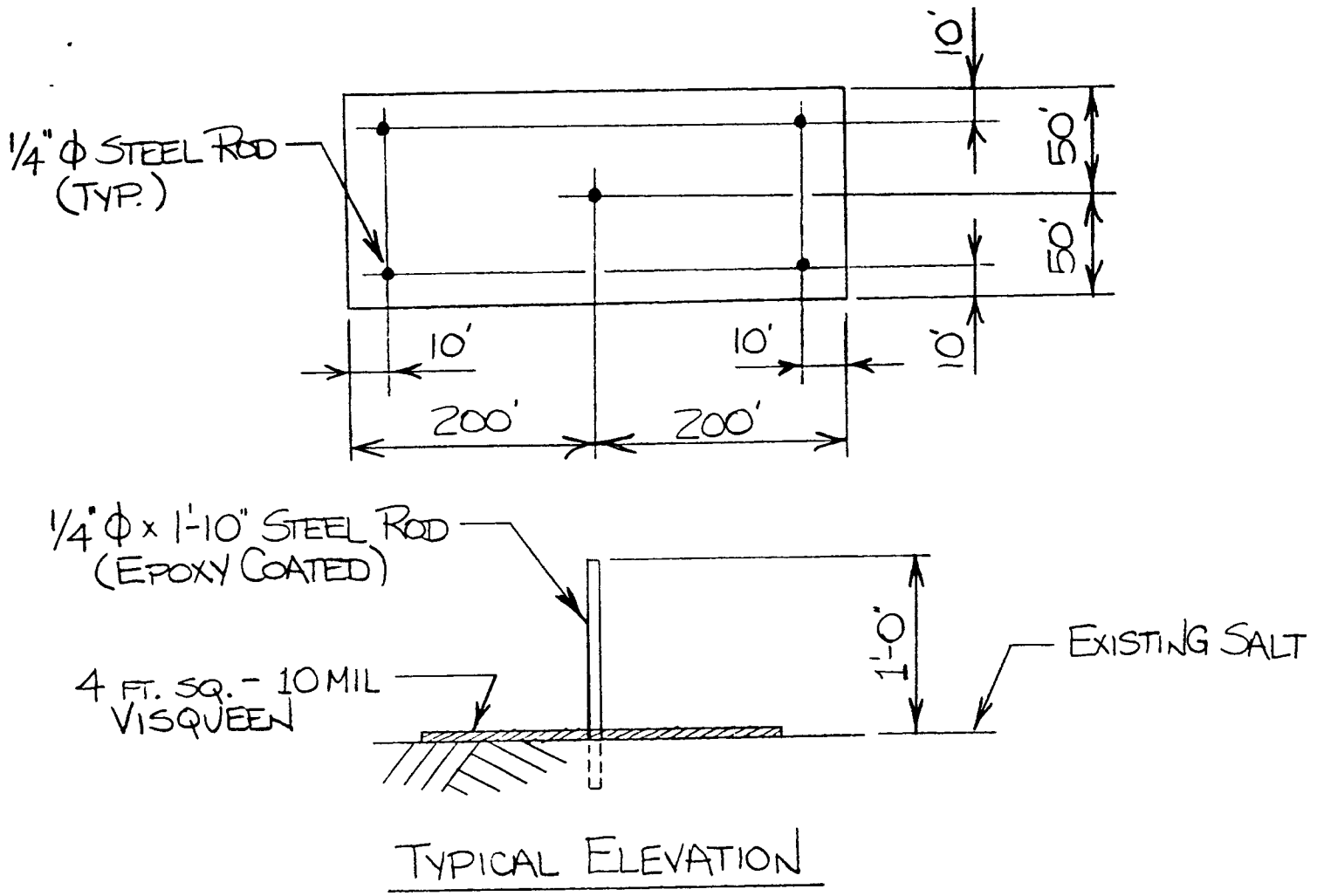
5.3.1 Test Plot #3 shall be constructed by spraying a 20% soluble solution of $MgCl_2$ on a 100' X 400' area.

5.3.2 The Contractor shall ensure the area is clean and does not contain any refuse or organic matter.

5.3.3 The Contractor shall spray 5,000 gallons of 20% solution $MgCl_2$ solution evenly over the test plot.

5.3.4 Test Plot #3 is to be located as staked by the BLM in T. 1S., R. 17W, section 17 in an area having approximately 2 inches of salt crust.

5.3.5 The Contractor shall be responsible for loading and transporting the $MgCl_2$ solution from Reilly Wendover to the test area.




TYPICAL ELEVATION

## 6. Quality Assurance

6.1 The Contractor shall install devices in Test Plot #1 to continuously measure the liquid level in the test plot. The device shall also record the maximum and minimum liquid levels in the test plot on a daily basis once five inches (5") has been reached for a period of thirty (30) days.

6.2 The Contractor shall be responsible for maintaining a liquid level between five inches (5") and seven inches (7") in Test Plot #1.

6.3 The Contractor shall maintain a daily log which includes, but is not limited to, the following:

- Date, time and temperature when reading occurred
- Temperature of liquid
- Integrity of dike
- Gallons of brine added to maintain liquid level
- Liquid level before and after addition of brine

6.4 The Contractor shall furnish and install items, as shown ~~below~~ Above, in Test Plot #2.

# APPENDIX

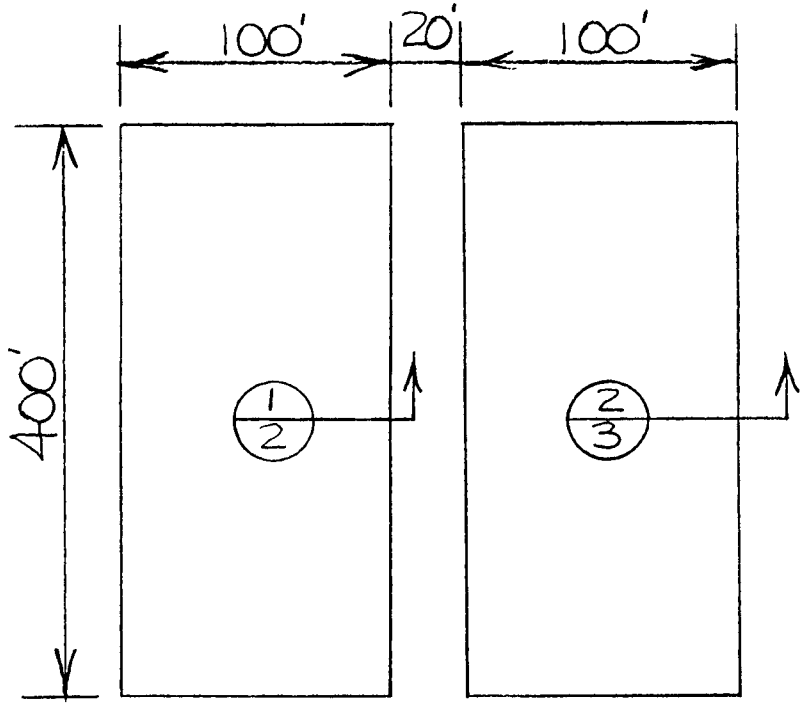
## I. FURNISHED BY OTHERS (FBO)

A. Reilly Industries shall provide the liquids and salts for the Test Plots. Reilly Industries will be responsible for ensuring that the liquid for test plots #1 and #3 is no less than eighteen percent (18%) sol and no greater than twenty-two percent (22%) sol.

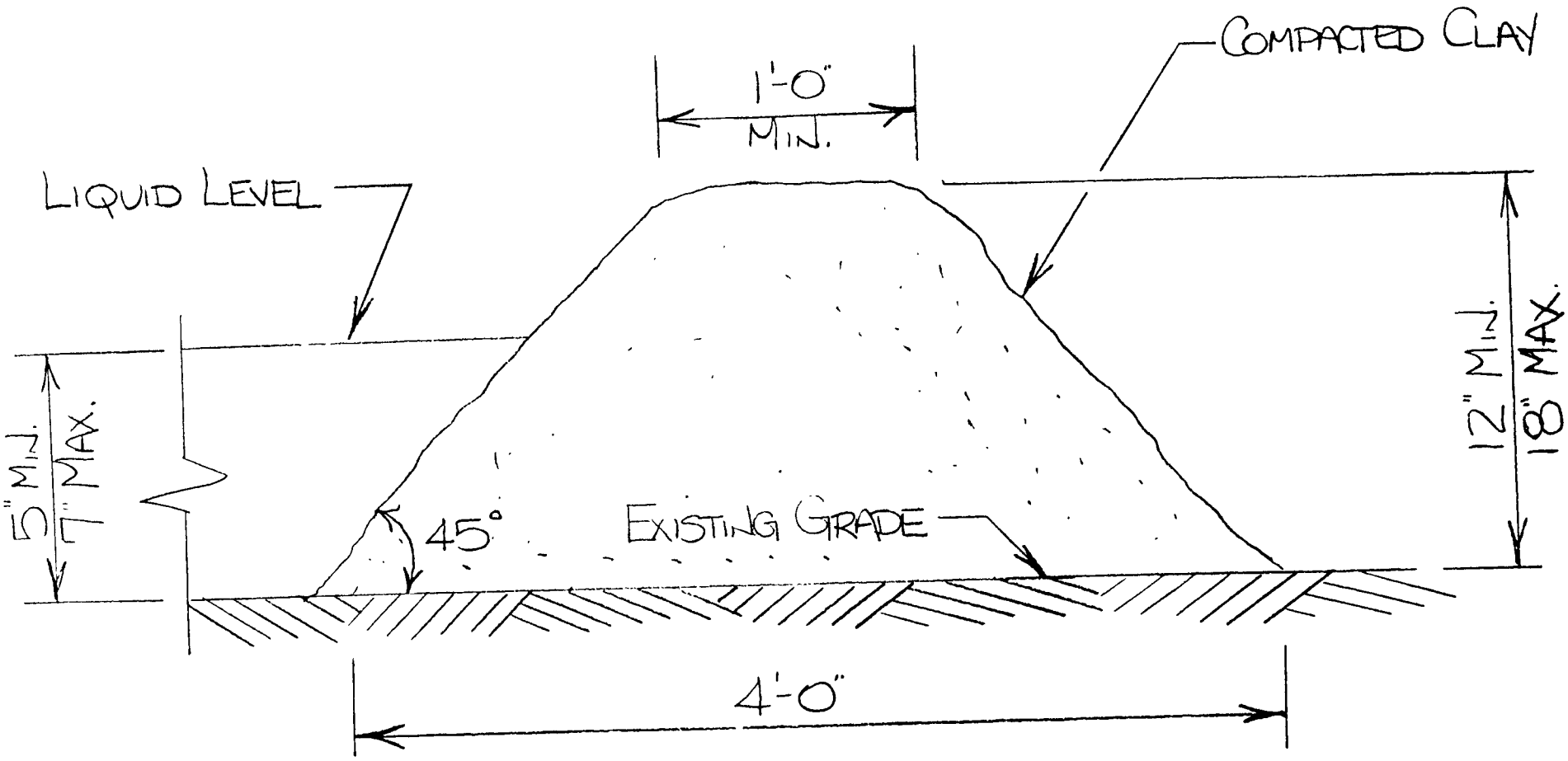
B. The test plots shall be located on land owned by BLM.

C. BLM shall stake the final test plot locations and provide any survey work necessary.

D. BLM shall be responsible for monitoring the daily logs and other data collected by the Contractor.



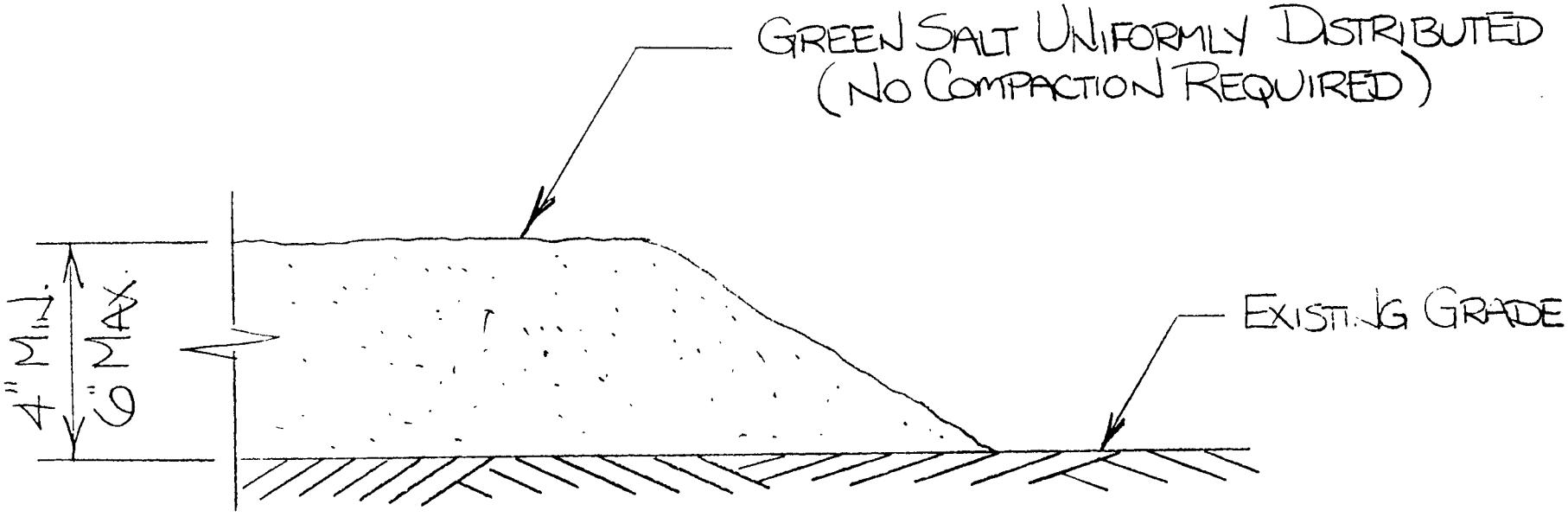

# TEST PLOT PLAN




SECTION THRU PERIMETER - TEST PLOT #1

1/1

SHT. 2 of 3




SECTION THRU PERIMETER - TEST PLOT # 2 (2/1)

SHT. 3 OF 3

## EVALUATION CRITERIA

1. **Color**. Use standard soil color charts to contrast the color range of the salt flats and test beds initially and every three months for one year.

2. **Adherence**. Evaluate the contact of the test salt bed to the underlying salt. The test bed should not buckle up or exhibit other forms of weak adherence to the underlying salt. At least one core of salt crust will be taken at each location by the BLM and observed for quality of bonding.

3. **Load bearing capacity**. The minimum load bearing capacity is 300 lbs. per square inch without breakage. ASTM standard procedure D-1194, or a similar procedure will be used to determine load bearing capacity. A 1 foot by 1 foot plate will be used to simulate vehicle wheel loading. The test will be performed under comparable moisture conditions, ie depth to ground water.

4. **Evaluation period**. The salt replacement test beds are to be evaluated every six months for one year. If the test beds are constructed in the spring, the test period will last until the following fall.

5. **Density**. Bulk density is to be determined by core drilling of salt test beds for plots 1 and 2. At least three samples of test bed salt before and after placement of the test will be taken. Core samples will be analyzed for density and percent insoluble material.

It is proposed that the BLM conduct the evaluation in cooperation with the USGS and a representative from the Bonneville Salt Flats Technical Review Committee. A report of the results will be prepared by the BLM.